

## **REMARKS**

Applicant hereby submits this Amendment and Response to the Office Action mailed December 11, 2008. The Office Action was mailed in response to a Request for Continued Examination (“RCE”) submitted by Applicant on September 29, 2008.

### **A. Duty to Disclose Information Material to Patentability**

#### **1. Criterion Top Bed Catalysts and Support**

On pages 2-3, items 2-4 of the Office Action, the Examiner requests additional information regarding the “prior art” status of the document titled “Criterion Top Bed Catalysts and Support,” which was submitted by Applicant in an IDS dated November 22, 1999. (Exhibit A).

Applicant believes that an erroneous statement was made in its Response to Office Action dated February 20, 2002, regarding this particular document. The Response indicated that the document “was available at least as of the date the IDS [for the present application] was filed, which was on **November 11, 1999**.” (Exhibit B).

It appears that Applicant’s counsel unintentionally and inadvertently juxtaposed the numbers in the IDS filing date for the present application (November 22, 1999) and the IDS filing date for its co-pending U.S. Application Serial No. 09/116,863 (November 11, 1998), which ultimately issued as U.S. Patent No. 6,258,900.

Applicant included this “Criterion Top Bed Catalysts and Support” document in its IDS filings for both of these applications. (Exhibit C). As noted by Applicant in the aforementioned Response, no publication date was provided for the “Criterion Top Bed

Catalysts and Support” document on the document itself or on the Criterion Internet website from which the document was obtained.

In the aforementioned Response, Applicant’s counsel meant to state that “Criterion Top Bed Catalysts and Support” was available at least as of the date when the IDS for its U.S. Application Serial No. 09/116,863 was filed, which was on **November 11, 1998**. Applicant apologizes for any inconvenience or misunderstanding this unintentional misstatement may have caused.

Notably, the effective filing date for the present application is **May 29, 1998**. This filing date precedes: the IDS filing date for U.S. Application Serial No. 09/116,863 (November 11, 1998); and the approximate disclosure date for the additional information from the Criterion website (August 1998) relating to the “Criterion Top Bed Catalysts and Support” document discussed by Applicant on the first full paragraph of page 3 of Applicant’s Response in **Exhibit B** hereto.

Applicant thus respectfully submits that the “Criterion Top Bed Catalysts and Support” document should not be considered prior art for the present application.

## **2. BT - 750**

On page 3, item 5 of the Office Action, the Examiner indicated that the document listed on the IDS filed September 29, 2008 (**Exhibit D**) was crossed off because no date information was provided.

This crossed-off item is the BT-750 ¾” ceramic wagon wheel unit, which was referenced as “prior art” in both the prosecution history for the present application and in Applicant’s prior Declaration dated February 28, 2008 (**Exhibit E**). This BT-750 ¾” ceramic wagon wheel unit is a basis for a 103(a) rejection in the present Office Action

(Exhibit F).

Upon further investigation, Applicant has learned that its use of the phrase “prior art” to describe this item was in error, and that the BT-750 ¾” ceramic wagon wheel unit is not “prior art” to Applicant’s claimed subject matter.

The BT-750 ¾” ceramic wagon wheel unit is manufactured by ACCCO, Inc. of Roseville, Ohio, and was first offered for sale by Catalyst Trading Company, Ltd, of Houston, Texas, in approximately 2002. This date is approximately four (4) years after Applicant’s effective filing date for the present application of May 29, 1998.

A signed Affidavit from John N. Glover, the listed inventor on the present application and President of Crystaphase International Inc., the Assignee for the present application, is included herewith. (Exhibit G). The Affidavit is based upon Mr. Glover’s first hand knowledge, and sets forth additional information regarding the earliest date on which the BT-750 ¾” ceramic wagon wheel unit was first offered for sale by Catalyst Trading Company, Ltd.

For the reasons stated herein and in the Affidavit, Applicant respectfully submits that the BT-750 ¾” ceramic wagon wheel unit should not be considered prior art for the present application. Applicant apologizes for any inconvenience or misunderstanding its previous, inadvertent, and unintentional miscommunications may have caused.

**B. Claim Rejections**

Regarding the §112 and §103 rejections, Applicant hereby reiterates and incorporates by reference its prior arguments made in the prosecution history for this application, including but not limited to those found in the Amendments and Responses filed September 26, 2008, June 8, 2007, February 17, 2005, and November 5, 2003, and the Appeal Brief originally filed

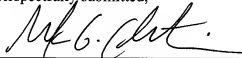
March 13, 2006.

**CONCLUSION**

Reconsideration of this application is respectfully requested. The Commissioner is authorized to charge any and all fees which may be required, or credit any overpayments, to Greenberg Traurig Deposit Account No. 50-2638 (Order No. 105218.04).

Date: June 11, 2009

Respectfully submitted,



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# Top Bed Catalysts and Support



## 855 MD (Medallion)

Application: Large inert, high void hold down material for improved flow distribution.

Size mm (in)	Ni % wt.	Mo % wt.	Crush Strength lb/mm	Void Fraction	Actual Loaded Density g/cc (lb/ft <sup>3</sup> )
16, (5/8)	0.0	0.0	6	65-70%	80 (50)



## 824 HC (Active Porous Hollow Cylinder)

Application: Low activity, macroporous iron guard hollow cylinder designed for coke fines and iron sulfide particulates.

Size mm (in)	Ni % wt.	Mo % wt.	Crush Strength lb/mm	Void Fraction	Actual Loaded Density g/cc (lb/ft <sup>3</sup> )
8, (1/3)	75	3.0	31	55-60%	67, (42)



## 814 HC (Active Hollow Cylinder)

Application: Moderate activity and high void hollow cylinder for top bed grading, especially for cracked feedstocks.

Size mm (in)	Ni % wt.	Mo % wt.	Crush Strength lb/mm	Void Fraction	Actual Loaded Density g/cc (lb/ft <sup>3</sup> )
6.4 (1/4)	2.5	10.3	1.5	50-55%	54, (34)
4.8 (3/16)					

## 804 HC (Active Hollow Cylinder)

Application: High activity hollow cylinder for top bed pyrolysis gasoline service.

Size mm (in)	Ni % wt.	Mo % wt.	Crush Strength lb/mm	Void Fraction	Actual Loaded Density g/cc (lb/ft <sup>3</sup> )
4.8, (3/16)	10.0	0	1.7	50-55%	48, (30)



## 514 SH (NiMo Active Support Sphere)

Application: Active reactor outlet support. Also used as holddown material in nonfouling services.

Size mm (in)	Ni % wt.	Mo % wt.	Crush Strength lb/mm	Void Fraction	Actual Loaded Density g/cc (lb/ft <sup>3</sup> )
8.0 (1/3)	1.7	5.3	5	30-35%	72, (45)
4.0 (1/6)					

## 544 SH (CoMo Active Support Sphere)

Application: Active reactor outlet support. Also used as holddown material in nonfouling services.

Size mm (in)	Co % wt.	Mo % wt.	Crush Strength lb/mm	Void Fraction	Actual Loaded Density g/cc (lb/ft <sup>3</sup> )
8.0 (1/3)	1.7	5.3	5	30-35%	72, (45)
4.0 (1/6)					

**B**

56. The method of fluid distribution of claim 47, including a step of utilizing ceramic filter units having a minor axes of 0.5 inches to 3 inches.

#### INFORMATION DISCLOSURE STATEMENT

The Examiner requested more information regarding a document that was cited on the IDS as cite no. DT, "Criterion, Top Bed Catalysts and Support." The document is available from Criterion's website at <http://www.criterioncatalysts.com/html/topbed2.html>. The document is part of Criterion's sales information. No publication dates are provided on the website for the document entitled "Top Bed Catalysts and Support." The document was available at least as of the date the IDS was filed, which was on November 11, 1999. Additional information is available on Criterion's website for the 855 MD (Medallion) product, which would be considered within the scope of the present invention. 'Product Bulletin: Criterion\* 855 MD "Medallions" Inert Catalyst Support' is the title of the document, a copy of which is now being provided. The publication date for this document is August 1998.

The filing date of the provisional application to which this application takes claim to is May 29, 1998. Since the filing date of the provisional application is prior to the disclosure of the information on Criterion's website and the publication of the product bulletin for 855 MD, disclosure of this information through these two publications are not prior art.

#### THE REJECTIONS

Claims 46 - 52 were rejected under the provisions of 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Claims 46 - 52 were rejected under the provisions of 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.



**C**

Substitute for COMMERCE FORM 1449A/PTO PTO/SB/06A (10-01)		U.S. DEPARTMENT OF Patent and Trademark Office		Complete if Known	
<b>INFORMATION DISCLOSURE          STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Application Number	10/867,015
				Filing Date	June 14, 2004
				First Named Inventor	John N. Glover
				Group Art Unit	1713
				Examiner Name	Unknown
Sheet	3	of	4	Attorney Docket Number	20781.014

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document		Publication Date MM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code Number	Kind Code (if known)			
	CM	DE 585,595		10-07-1933	Schlick	
	CN	UK 374,787		07-07-1932	Hattington, et al.	
	CO	UK 943,124		08-08-1963	Carl-Ziess-Stiftung	
	CP	UK 267,877		01-14-1927	Strack, et al.	
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	CR	EP 0260826A1		03-23-1988	Twigg	
	CS	EP 0719578A1		07-03-1996	Nowobilski, et al.	

OTHER DOCUMENTS				
Examiner Initials*	Cite No.	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation?	
1	CT	RASHMI NARAYAN; Particle Capture from Non-Aqueous Media on Packed Beds; Dept. of Chemical and Materials Engineering; Fall 1996; Edmonton, Alberta.		
2	CU	DR. KEN J. MILLS; Ceramic Guard Bed Materials; Seminar for CatCon '98; June 3-5, 1998, Akron, Ohio.		
3	CV	KENNETH R. BUTCHER, Reticulated Ceramic Foam as a Catalyst Support; Seminar for CatCon '98; June 3-5, 1998; Akron, Ohio.		
4	CW	WOODWARD, ET AL.; Akzo Chemicals' Guard Bed Technology; 1991.		
5	CX	Norton Chemical Process Products Corp.; Denstone Inert Catalyst Bed Supports; 1992; Akron, Ohio.		
6	CY	Petro Ware, Inc.; 86 Catalyst Support Media, "Premium Quality from Beginning to End"; Crooksville, Ohio		
7	CZ	STROM, ET AL.; Advanced Reticulated Ceramics; Hi-Tech Ceramics; pp. 14-19.		
8	DA	SWEETING, ET AL.; Reticulated Ceramics for Catalyst Support Applications; Hi-Tech Ceramics, Inc.; November 30, 1994.		
9	DB	Hi-Tech Ceramics; Retical, Designing the Future with Advanced Reticulated Ceramics; Product Brochure; undated.		
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11	DD	Selee Corporation; Product Brochure; undated.		
12	DE	Saxonburg Ceramics Incorporated; Product Material Specifications; undated.		
13	DF	FOSECO Home Page; Internet; pp. 1-3; February 21, 1997.		

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

Application Number	10/867,015
Filing Date	June 14, 2004
First Named Inventor	John N. Glover
Group Art Unit	1713
Examiner Name	Unknown

(use as many sheets as necessary)

Sheet	4	of	4	Attorney Docket Number	20781.014
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15	DH	Selece Corporation; Ceramic Foam for Thermal/Kiln Furniture Applications; Ceramic Foam Kiln Furniture Physical Property Data Sheet; November 14, 1996.
16	DI	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 85–101; 1990.
17	DJ	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 98–118; 1991.
18	DK	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 104–135; 1992.
19	DL	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 94–112; 1993.
20	DM	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 98–139; 1994.
21	DN	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 96–123; 1995.
22	DO	NPRA Q&A Session on Refining and Petrochemical Technology; Section B, Hydrotreating; pp. 131–160; 1996.
23	DP	Koch; Reactor Internals by Koch, Your Way; undated.
24	DQ	HICKMAN, ET AL.; Production of Syngas by Direct Catalytic Oxidation of Methane; Science; Vol. 259, pp. 343–346; January 15, 1993.
25	DR	GKN Sinter Metals; Design Ideas and Application – Porous Discs; undated.
26	DS	Sinter Metals; High Porosity SIK-A-R...ISTM, Porous Discs; undated.
27	DT	Sinter Metals; Tool List, Seamless SIK-A-Elements; undated.
28	DU	Sinter Metals; High Porosity Sintered Materials; pp. 1–16; undated.
29	DV	Christy Refractories Company; Prox-Svers Catalyst Support Media; 4/95.
30	DW	Haldor Topsoe, Inc.; Material Safety Data Sheet Inert Topping TK-10, pp. 1–4; 1992.
31	DX	Criterion; Top Bed Catalysts and Support; undated

*Mystery*

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# United States Patent Glover

(10) Patent No.: US 6,258,900 B1  
(45) Date of Patent: Jul. 10, 2001

- (54) **FILTRATION AND FLOW DISTRIBUTION METHOD FOR CHEMICAL REACTORS**
- (75) Inventor: John N. Glover, Spring, TX (US)
- (73) Assignee: Crystaphase International, INC, Houston, TX (US)
- (\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
- (21) Appl. No.: 09/116,863
- (22) Filed: Jul. 16, 1998
- (51) Int. Cl.<sup>7</sup> ..... C08F 2/00
- (52) U.S. Cl. .... 526/67; 526/71; 526/64
- (58) Field of Search ..... 526/67, 64, 71

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(List continued on next page.)

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(List continued on next page.)

Primary Examiner—David W. Wu

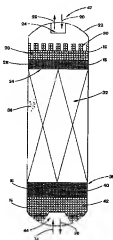
Assistant Examiner—Ling-Siu Choi

(74) Attorney, Agent, or Firm—Bracewell & Patterson, LLP.

## (57) ABSTRACT

A method for removing contaminants from an organic-based feed stream which includes the use of a layer of reticulated ceramic material to filter the organic-based feed stream and to provide liquid distribution upstream of the catalyst bed.

43 Claims, 7 Drawing Sheets



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 Criterion; Top Bed Catalysts and Support; undated.  
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**D**



PROSRIOSH MALHOTRA

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**Complete if Known**

Application Number	09/320,950
Filing Date	May 27, 1999
First Named Inventor	Glover, John N.
Art Unit	4720
Examiner Name	David Sorkin
Attorney Docket Number	105218.04

(Use as many sheets as necessary)

Sheet 1 of 1

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12/08/2008

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with NPEP 609. Draw line through citation if not in conformance and not considered. Indicate copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is in the file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing and submitting the completed application form. The burden on the public will vary depending on the number of comments the public has on the gathering, preparing and submitting the completed application form. The burden on the public will be reduced by the burden to be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22315-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22315-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:  
**John N. Glover**

Examiner: **David L. Sorkin**

Serial No.: **09/320,950**

Art Unit: **1723**

Filed: **May 27, 1999**

Attorney Docket No.  
**105218.04**

For: **FILTERING MEDIUM AND  
METHOD FOR CONTACTING  
SOLIDS CONTAINING FEEDS  
FOR CHEMICAL REACTORS**

**SUPPLEMENTAL DECLARATION OF JOHN N. GLOVER**

I, John N. Glover, declare that I am over the age of twenty-one (21) years of age and am fully competent to make this declaration. I have personal knowledge of the facts set forth in this declaration and they are true and correct. I declare:

1. I am the President of Crystaphase International, Inc. and its related corporate entities (hereinafter "Crystaphase"), and maintain an office at Crystaphase at 16945 Northchase Drive, Suite 1610, Houston, TX, 77060-6029. I have been employed by Crystaphase since 1989 to the present as the President. I am the named inventor in the above-identified patent application and am familiar with the disclosure in the above-identified patent application.
2. I have worked in the petroleum refining and petrochemical industries for at least twenty-five years. I am familiar with ceramic filter units, catalysts, and recycling of these units.
3. I am a named inventor of the subject application and thus would be considered of above-ordinary skill in the art of ceramic filter units and associated methods. In my position of President, I have supervised numerous individuals and therefore am knowledgeable about the level of understanding of one with ordinary skill in the art in the field of ceramic filter units.

4. My educational experience includes undergraduate studies in Biology and Chemistry. I have performed numerous experiments on the subject matter of the above referenced patent application. I am extremely familiar with terms in the industry and the understanding associated with those terms throughout the industry
5. As discussed in my previous Declaration dated November 5, 2003, I participated in an experiment in which comparative performance data was obtained for ceramic filter units comparing ceramic units in accordance with embodiments of the presently claimed methods having combinations of elliptical and circular openings, along with flutes, to ceramic units in accordance with prior art units having combinations of circular openings and flutes (See Table I). Five prior art ceramic units (Products A, B, C, D, and E) were compared to three ceramic units made in accordance with the presently claimed embodiments (Products F, G, and H, as shown in FIG. 4 of the present application).
6. As discussed in my previous Declaration dated November 5, 2003, the maximum flow rate in a cell, among other parameters, was measured for all of the tested ceramic units. The maximum flow in a cell was determined by measuring the flow rates of each active cell and determining the highest flow rate of those cells. In this experiment, the lower the maximum flow rate, the better. The best performing ceramic unit tested was Product F with only a 4.46% maximum flow rate in any one cell (See Table I). The best performing prior art ceramic unit was Product C with an 8.45% maximum flow rate in any one cell (See Table I). The best embodiment of the presently claimed methods, Product F, performed approximately 47% better than the best performing prior art ceramic unit tested, Product C (See Table I).
7. In this Supplemental Declaration, new rows 10 and 11 have been added to the initial test results of Table I to demonstrate additional unexpected and surprisingly advantageous properties discovered by Applicant. In particular, rows 10 and 11 demonstrate that unit F having elliptical openings in an embodiment of the presently claimed methods has improved lateral displacement and volumetric distribution properties when compared to the prior art units A-E.
8. Table II of this Supplemental Declaration includes a second set of test results, in

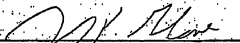
which comparative performance data was obtained for ceramic filter units comparing ceramic units having trisoid shaped openings to ceramic units in accordance with prior art units having combinations of (i) triangular and (ii) circular, oval and triangular openings. The test results show that trisoid shaped openings (see Table II, column D) displayed unexpected and surprisingly advantageous fluid distribution properties, in particular, maximum flow rate and volumetric distribution, when compared to the prior art units of Table II, columns A-C, and of Table I, column C.

9. In Table II, the best performing ceramic unit tested was Applicant's Product D with only a 6.40% maximum flow rate in any one cell. In contrast, the best performing prior art ceramic unit in Table II was Product B with an 11.19% maximum flow rate in any one cell. The best performing prior art ceramic unit in Table I was Product C with an 8.45% maximum flow rate in any one cell. In other words, Applicant's Product D performed better than the best performing prior art ceramic units tested, Products C and B, from Tables I and II, respectively. Although Product D does not include a central opening, I believe that these test results are generally indicative of the fact that units having trisoid shaped openings such as Product D perform unexpectedly and surprisingly better than prior art units having differently shaped openings such as those tested herein.
10. Crystaphase has enjoyed much commercial success from the sale of these ceramic units. Crystaphase began selling the ceramic units made in accordance with embodiments of the presently claimed methods in 1998. Since then, Crystaphase has sold more than eight million dollars worth of units made in accordance with embodiments of the presently claimed methods, which approximates 40,000 cubic feet of product being sold, which correlates to about 30% - 35% of the total market in recent years. With so many units sold, the ceramic units should be deemed to have met an unfilled need in the industries in which these ceramic units have been sold.
11. I believe there is no motivation for one of ordinary skill in the field of ceramic filter units to utilize ceramic disc units containing a central circular opening and at least three elliptical openings, or trisoid shaped openings, in accordance with embodiments of the presently claimed methods, at least without resorting to hindsight after viewing the present invention.

12. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Sec. 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the publication or any patent issued thereon.

Date:

2/25/2008



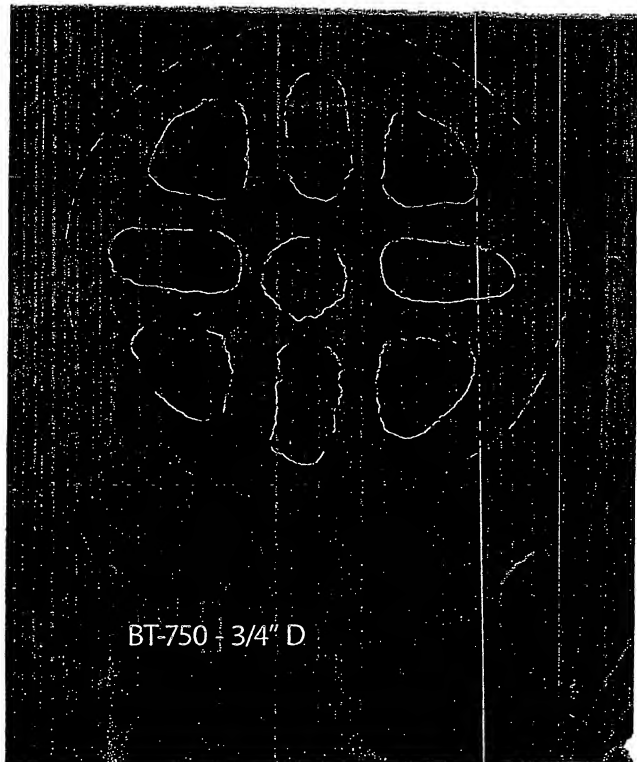
John N. Glover

TABLE I - SUMMARY OF COLD FLOW EXPERIMENT RESULTS

Shape	PRIOR ART				PRESENT INVENTION			
	Spheres		Cylindrical Openings		Elliptical Openings			
Product	A (3/4" Ceramic balls)	B (3/4" Ceramic balls)	C (5/8" TK-10)	D (7/8" TK-10)	E (5/8" Dyport 607)	F (5/8" BG-1000)	G (7/8" BG-1000)	H (7/8" BG-1002)
Top layer - Depth	6"	12"	6"	6"	6"	6"	6"	6"
Shape	Sphere	Sphere	Disc with 7 cylindrical openings	Disc with 7 cylindrical openings	Disc with one cylindrical opening and six flow ports	Disc with four elliptical and one central circular openings	Disc with four elliptical and one central cylindrical openings	Elongated Disc with four elliptical and one central cylindrical openings
Void space	n/a	n/a	55%	55%	60%	60%	60%	63%
Bottom layer - Depth	6"	6"	6"	6"	6"	6"	6"	6"
Size and Shape	1/4" Sphere	1/4" Sphere	1/4" Sphere	1/4" Sphere	1/4" Sphere	1/4" Sphere	1/4" Sphere	1/4" Sphere
Void space	-39 %	-39 %	-39 %	-39 %	-39 %	-39 %	-39 %	-39 %
1. Total number of active cells	36	46	58	46	59	86	89	84
2. % of active cells	14.23%	18.18%	22.92%	18.18%	23.32%	33.99%	27.27%	33.20%
3. Area of Active Cells	49	100	143	72	120	180	121	153
4. Number of active cells greater than 5 cells distance from center	0	0	2	0	1	4	2	10
5. Number of active cells greater than 6 cells distance from center	0	0	3	0	0	0	0	3
6. Average Flow Rate per Active Cell	2.78%	2.17%	1.72%	2.17%	1.69%	1.18%	1.45%	1.19%
7. Maximum Flow Rate in a Cell	10.42%	7.03%	8.45%	10.39%	9.07%	4.46%	7.17%	9.74%
8. Percentage of active cells greater than 5 cells distance from center	27.78%	23.91%	17.24%	26.09%	23.73%	10.47%	8.70%	8.33%
9. Percentage of active cells greater than 6 cells distance from center	25.00%	8.70%	5.17%	6.52%	5.08%	0.00%	7.25%	3.57%
10. Lateral Displacement (0 - 100)	38.88	55.55	68.89	NA	NA	72.21	NA	NA
11. Volumetric Distribution (0 - 120)	71.04	69.04	71.83	NA	NA	79.03	NA	NA

TABLE 2 - SUMMARY OF ADDITIONAL COLD FLOW EXPERIMENT RESULTS

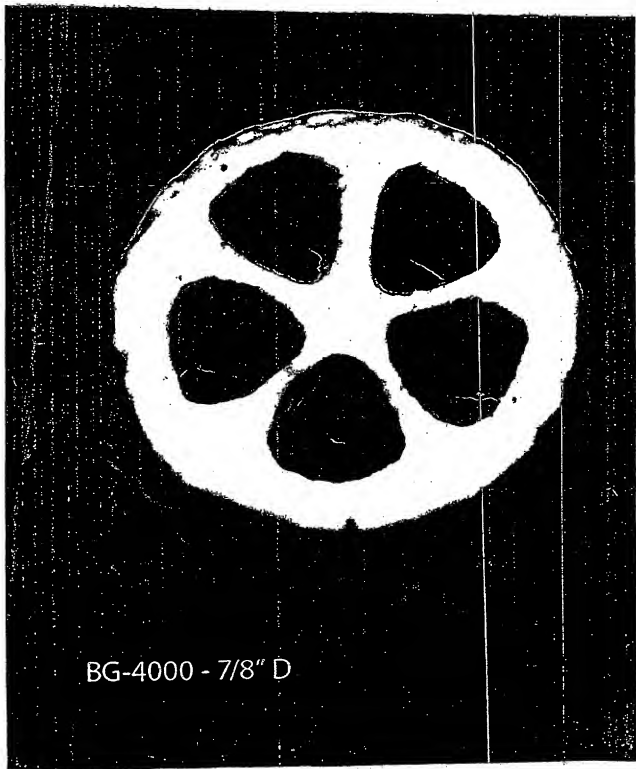
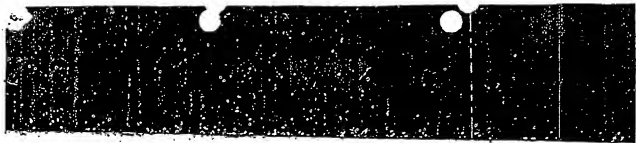
Shape Product	PRIOR ART			PRESENT INVENTION	
	Triangle Openings. A. (1-3/4" AFS)	Triangle Openings B (7/8" Pentang)	Circular, Oval and Triangle Openings C (3/4" BT-750)	Triangle Openings D (7/8" BG-4000)	
Top layer - Depth					
Shape	Disc with 265 triangle openings	Disc with five triangle openings	Disc with 1 central circular opening, four oval openings and four triangle openings	Disc with five trisoid openings	
Void space	~75%	~60%	~55%	~60%	
Bottom layer - Depth					
Size and Shape					
Void space	~40%	0"	0"	0"	
1. Total number of active cells	1538	62	144	52	
2. % of active cells	15.81%	26.48%	17.35%	20.55%	
3. Area of Active Cells	132	143	100	144	
4. Number of active cells greater than 5 cells distance from center	8	2	5	4	
5. Number of active cells greater than 6 cells distance from center	3	0	0	1	
6. Average Flow Rate per Active Cell	1.97%	1.41%	2.27%	1.92%	
7. Maximum Flow Rate in a Cell	15.00%	11.19%	14.17%	5.40%	
8. Percentage of active cells greater than 3% of total flow	2.77%	2.77%	3.56%	3.95%	
9. Percentage of active cells greater than 5% of total flow	1.58%	1.58%	1.19%	0.79%	
10. Lateral Displacement (0 - 100)	63.94	66.89	55.55	66.66	
11. Volumetric Distribution (0 - 100)	50.32	63.87	75.00	85.56	





Pentaring - 7/8" D







12. Claims 59, 61-67, 69-85, 94 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer ('796) in view of Fulton as applied to claims 59, 61-67 and 69-85 above, and further in view of Hung et al. (DE 3,539,195). While it is considered that the broadest reasonable definition of ellipse includes circles, as discussed above, to the extent that someone would argue that circles are excluded from the set of ellipses, Hung et al. (DE 3,539,195) is relied upon as establishing the art recognized equivalence of circular and elliptical openings in ceramic units. As explained in pages 8-10, especially lines 6 and 7 of page 9, of the English translation of Hung ('195), elliptical openings are recognized as an alternative to circular openings. It is considered that it would have been obvious to one of ordinary skill in the art to have substituted elliptical holes for the circular holes discussed above, because circular holes and elliptical holes are recognized in the art as alternative for the same purpose according to Hung ('195) pages 8-10, especially lines 6 and 7 of page 9. Regarding claim 95, see *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) regarding the obviousness of duplicating parts.

13. Claims 59, 61-67, 69-85, 94 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (US 4,615,796) in view of Fulton and further in view of the admitted prior art of applicant's declaration filed 28 February 2008, which relates to the BT-750. While, as set forth above, it is considered that the claims are obvious over Kramer (US 4,615,796) in view of Fulton alone, the admitted prior art evidences that it was known in the art to include at least four non-circular ellipse shaped openings in a unit, between a central circular opening and a periphery. ] \*



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant: Glover, John N.	)	
Filed: May 27, 1999	)	Art Unit: 1723
Application No.: 09/320,950	)	
	)	Primary Examiner: David Sorkin
For: Filtering Medium and Method for	)	
Contacting Solids Containing Feeds for	)	Attorney Docket No: 105218.04
Chemical Reactors	)	(formerly 020781.04)

DECLARATION OF JOHN N. GLOVER

I, John N. Glover, declare that I am over the age of twenty-one (21) years of age and am fully competent to make this declaration. I have personal knowledge of the facts set forth in this declaration and they are true and correct. I declare:

1. I am the President of Crystaphase International, Inc. and its related corporate entities (hereinafter "Crystaphase"), and maintain an office at Crystaphase at 16945 Northchase Drive, Suite 1610, Houston, TX, 77060-6029. I have been employed by Crystaphase since 1989 to the present as the President. I am the named inventor in the above-identified patent application and am familiar with the disclosure in the above-identified patent application.
2. I have worked in the petroleum refining and petrochemical industries for at least twenty-five years. I am familiar with ceramic filter units, catalysts, and recycling of these units.
3. I am a named inventor of the subject application and thus would be considered of above-ordinary skill in the art of ceramic filter units and associated methods. In my position of President, I have supervised numerous individuals and therefore am knowledgeable about the level of understanding of one with ordinary skill in the art in the field of ceramic filter units.

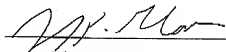
4. My educational experience includes undergraduate studies in Biology and Chemistry. I have performed numerous experiments on the subject matter of the above referenced patent application. I am extremely familiar with terms in the industry and the understanding associated with those terms throughout the industry
5. In my Declaration of February 25, 2008, that was submitted to the U.S. Patent and Trademark Office in connection with this application, I made reference to test results performed by Crystaphase that involved the BT-750 ¾" ceramic wagon wheel unit. In the Declaration, I incorrectly referred to the BT-750 ¾" ceramic wagon wheel unit as "prior art" in relation to the claimed subject matter in my present patent application.
6. The BT-750 ¾" ceramic wagon wheel unit is manufactured by ACCCO, Inc. of Roseville, Ohio ("ACCCO") and offered for sale by Catalyst Trading Company, Ltd. of Houston, Texas ("CTC"). A screenshot from CTC's Internet website is included as Exhibit A to this Declaration. This screenshot shows that CTC was selling the BT-750 ¾" ceramic wagon wheel units as recently as August of 2008.
7. ACCCO manufactures the BT-750 ¾" ceramic wagon wheel for CTC. CTC first began offering the BT-750 ¾" ceramic wagon wheel unit for sale in or around 2002. This was approximately four (4) years after the effective filing date of May 29, 1998, for the present patent application.
8. ACCCO also manufactures ceramic filter units for Crystaphase, including certain units that are described and/or claimed in the present application. ACCCO has manufactured ceramic filter units for Crystaphase for approximately ten (10) years, since about 1999. I am generally aware of the ceramic units manufactured by ACCCO that can potentially be used in the same industry as those ceramic filter units that ACCCO manufactures specifically for Crystaphase.
9. In view of the fact that the BT-750 ¾" ceramic wagon wheel unit was first offered

for sale approximately four (4) years after May 29, 1998, the wagon wheel unit is not "prior art" in relation to this present patent application.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Sec. 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the publication or any patent issued thereon.

Date:

June 11, 2009



John N. Glover



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- Catalyst Inventory
- Support Inventory
- Bed Topping Materials
- Aluminas / Sieves
- Inventory Management
- Specialized Supplies
- Our Customers
- Warehousing Facility

## Bed Topping Materials

Our current Bed Topping materials are listed below.

### CTC Products Currently In Stock:

**\*\* Sort products by clicking an associated column header.**

Product	Manufacturer	Properties	Size	Condition	Quantity
BT-1000 1" Ceramic Wagon Wheel	CTC	Bed Topping	1"	Fresh	500 cf.
855 MD	Criterion	Bed topping	5/8" wagon wheel	Fresh	3,010 lbs.
A-541	Albemarle	Bed topping	5.4mm	Fresh	367 lbs.
BT-500 1/2" Ceramic Wagon Wheel	CTC	Bed Topping	1/2"	Fresh	500 cf.
BT-750 3/4" Ceramic Wagon Wheel	CTC	Bed Topping	3/4"	Fresh	500 cf.
C-514	Criterion	Bed Topping	4.0mm	Fresh	13,000 lbs.
C-514	Criterion	Bed topping	8.0mm	Fresh	15,000 lbs.
CTC 3/16" Raschig Ring	CTC	Bed Topping	3/16"	Fresh	480 cf.

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